

CLAIMS:

1. A vehicle seat comprising a squab and a back-rest, the back-rest comprising a frame covered with upholstery; and an air-bag unit comprising an inflatable air-bag connected to an inflator to inflate the air-bag; the air-bag unit being mounted to the back-rest frame so as to be located inboard of part of the frame with the inflator being positioned to direct gas into the air-bag in a generally forward direction relative to the back-rest, such that actuation of the air-bag unit will cause the air-bag to inflate so that at least part of the air-bag lies between the frame and an occupant of the seat; wherein the air-bag unit is mounted such that the inflator is located adjacent the rear-most region of the frame, so that a significant length of air-bag bears against the frame as the air-bag is inflated.
2. A vehicle seat according to any preceding claim, wherein the air-bag unit comprises a cover within which the air-bag is initially packed, the cover defining a break-line configured to break upon inflation of the air-bag such that the inflating air-bag bursts out of the cover; the cover being configured such that part of the cover engages the back-rest frame upon inflation of the air-bag so as to extend substantially forwardly of the frame and to define a support against which the air-bag bears upon inflation.
3. A vehicle seat according to claim 2, wherein said part of the cover is configured to engage the frame so as also to extend inwardly of the frame.
4. A vehicle seat according to claim 2 or 3, wherein said part of the cover comprises a reinforcing rib.

5. A vehicle seat according to any preceding claim, wherein the air-bag unit comprises an inner air-bag and an outer air-bag, the inner air-bag being provided inside the outer air-bag, and both airbags being connected to the inflator so that they are both inflated together upon actuation of the air-bag unit.

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6. A vehicle seat according to claim 5, wherein the outer air-bag is larger than the inner air-bag in the sense that it extends further forwards from the inflator when fully inflated.

10 7. A vehicle seat according to claim 5 or claim 6, wherein the inner and outer air-bags are initially provided in a packed condition in which the inner bag and at least part of the outer bag are folded together in a substantially zigzag manner about fold lines lying substantially parallel to the axis of the back-rest extending away from the squab.

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8. A vehicle seat according to claim 5 or claim 6, wherein the inner and outer air-bags are initially provided in a packed condition in which the inner bag and at least part of the outer bag are spirally rolled together about an axis of the back-rest extending away from the squab.

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9. A vehicle seat according to claim 7 as dependant upon claim 6, wherein part of the outer air-bag extending past the forwardmost extent of the inner air-bag is initially spirally rolled about an axis substantially parallel to the axis of the backrest extending away from the squab.

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10. A vehicle seat according to claim 8 as dependent upon claim 6, wherein part of the outer air-bag extending past the forwardmost extent of the inner air-bag is initially folded in a substantially zig-zag manner about fold lines

lying substantially parallel to the axis of the back-rest extending away from the squab.

11. A vehicle seat according to any one of claims 1 to 4, wherein the air-bag
5 unit comprises a single air-bag having two inflatable chambers, the first of said
chambers being located immediately adjacent the inflator, and the second
chamber being located forwardly of the first chamber so as to be spaced from
the inflator by the first chamber, the air-bag being configured such that upon
actuation of the air-bag unit, the first said chamber is inflated substantially fully
10 before the second chamber begins to inflate substantially.

12. A vehicle seat according to claim 11, wherein the two chambers are
separated by a tear-seam configured to rupture or tear when the first chamber
becomes inflated to a predetermined gas pressure, so as to then allow the
15 second chamber to be inflated.

13. A vehicle seat according to claim 11, wherein the two chambers are
separated by a seam having one or more apertures along its length to allow the
passage of gas therethrough.
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14. A vehicle seat according to any one of claims 11 to 13, wherein a vent
hole is provided in the air-bag in the region of the forwardmost part of the
second chamber.

25 15. A vehicle seat according to any one of claims 1 to 4, wherein the air-bag
unit comprises a single air-bag configured such that the forwardmost region of
the air-bag remote from the inflator is folded inwardly of itself to define a
re-entrant portion.

16. A vehicle seat according to claim 15, wherein adjacent regions of the re-entrant portion of the air-bag are initially stitched together by stitching to define a tear-seam configured to tear or rupture upon inflation of the air-bag.

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17. A vehicle seat according to any one of claims 11 to 15, wherein the air-bag is initially provided in a packed condition in which at least part of the air-bag is folded in a substantially zigzag manner about fold lines lying substantially parallel to the axis of the back-rest extending away from the squab.

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18. A vehicle seat according to any one of claims 9 to 15, wherein the air-bag is initially provided in a packed condition in which at least part of the air-bag is initially spirally rolled about an axis substantially parallel to the axis of the backrest extending away from the squab.

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19. A vehicle seat according to any one of claim 1, wherein the air-bag unit comprises an inboard air-bag and an outboard air-bag, the inboard air-bag being located inboard of the outboard air-bag and the outboard air-bag being located between the inboard air-bag and said part of the frame, both of said air-bags being connected to the same inflator.

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20. A vehicle seat according to claim 19, wherein the two said air-bags are sized such that the inboard air-bag extends a greater distance between said part of the frame and the seat occupant than the outboard air-bag.

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21. A vehicle seat according to claim 19 or 20, wherein the two said air-bags are sized such that the outboard air-bag extends further from the inflator than the inboard air-bag when the two air-bags are fully inflated.

22. A vehicle seat according to any one of claims 19 to 21, wherein the inboard and outboard air-bags are initially provided in a packed condition in which the inboard bag and at least part of the outboard bag are folded together
5 in a substantially zigzag manner about fold lines lying substantially parallel to the axis of the back-rest extending away from the squab.

23. A vehicle seat according to any one of claims 19 to 21, wherein the inboard and outboard air-bags are initially provided in a packed condition in
10 which the inboard bag and at least part of the outboard bag are spirally rolled together about an axis substantially parallel to the axis of the back-rest extending away from the squab.

24. A vehicle seat according to claim 22 as dependant upon claim 21,
15 wherein part of the outboard air-bag extending past the forwardmost extent of the inboard air-bag is initially spirally rolled about an axis substantially parallel to the axis of the backrest extending away from the squab.

25. A vehicle seat according to claim 23 as dependent upon claim 21,
20 wherein part of the outboard air-bag extending past the forwardmost extent of the inboard air-bag is initially folded in a substantially zig-zag manner about fold lines lying substantially parallel to the axis of the back-rest extending away from the squab.